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COMPUTER SCIENCE NEWSLETTER

No. 99

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GENERAL NEWS

PAGE

A Joint Toronto-Ryerson-York Computer Centre? 1
Honeywell Multics Presentation 1
A PLATO Terminal Now Available at UTCC 2
Computer Service Prices for 1973/1974 2
Experimental Data Collection and APL 2
Dave McNaughton Named Associate Director 3
Personnel Changes 3
BMD Statistical Computer Program Course 4
Summer Information Office Hours 4
Recent Acquisitions in the DCS Library 5
APL V Conference 6

SYSTEM/370 SERVICES

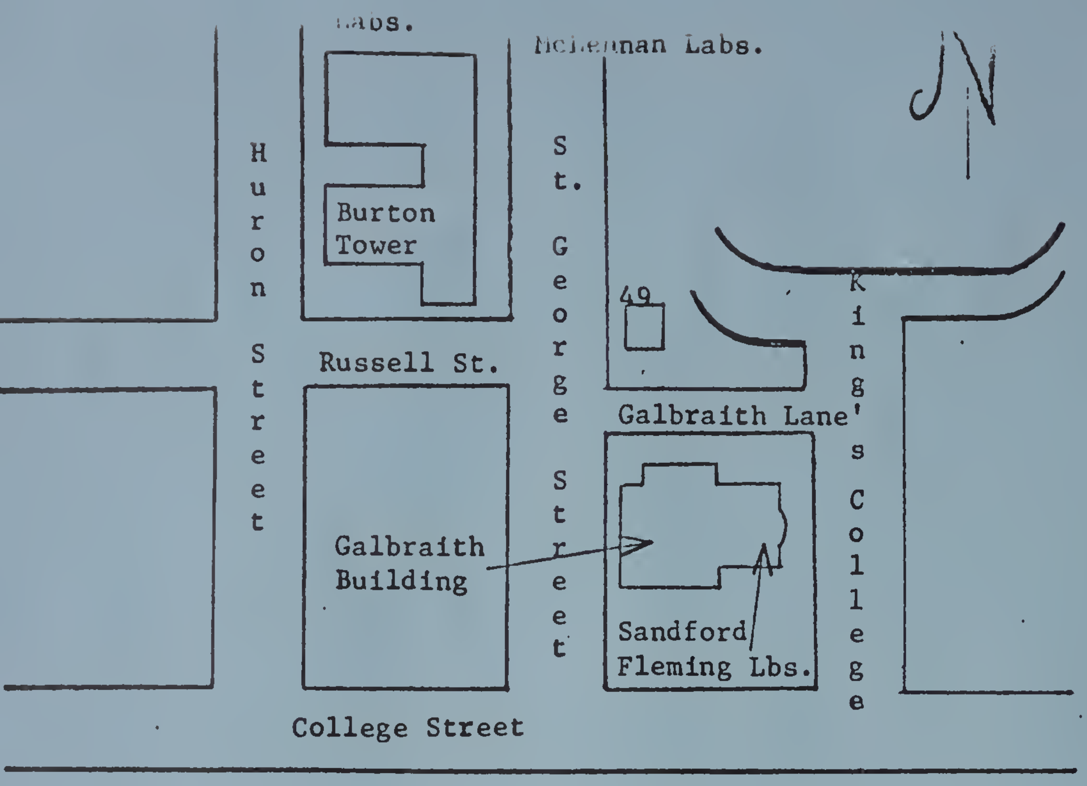
Just How Busy is the S/370-165? 10
General Purpose Job Stream Advisers' Survey 12
FORTRAN Program Products on the S/370-165 14
EXECUTOR 15
Format Dump Program 16
Braille Printing 16
Special Printer Setup 17
Maintenance Release of the Operating System 18
Updates Issued for USERBOOK Section 3 19

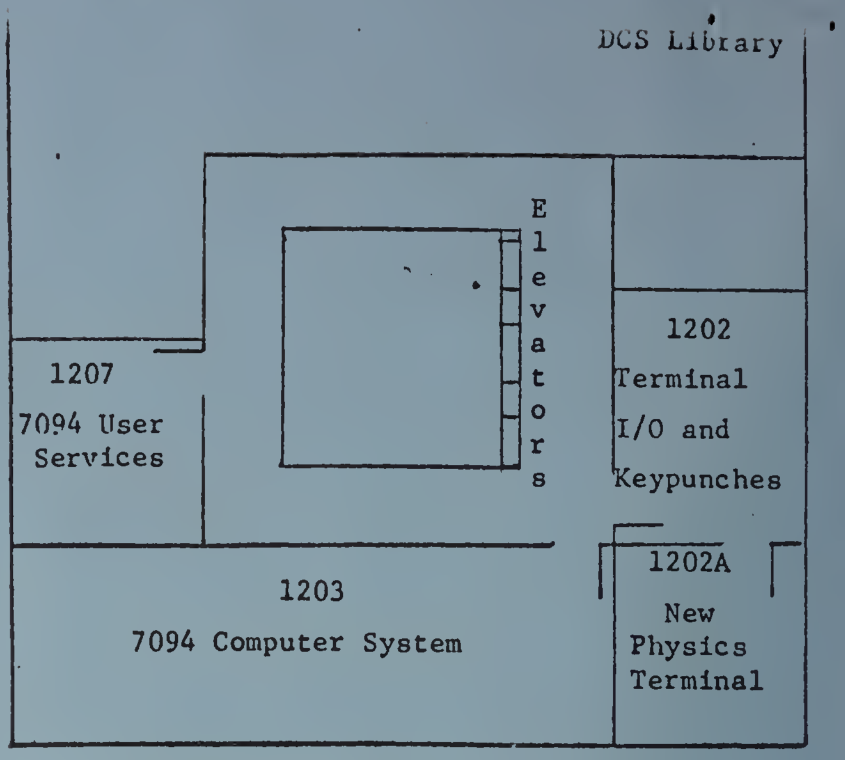
INTERACTIVE TERMINAL SYSTEMS

ASCII Support on APL 21
ASCII Support on ATS 21
Interactive Systems Reliability 22

COMPUTER RESEARCH FACILITY

General News 23
Expansion of S/360-44 Core Memory 24
Hours of Operation 24
Visitors to the CRF Laboratory 24
CRF Staff Directory 25

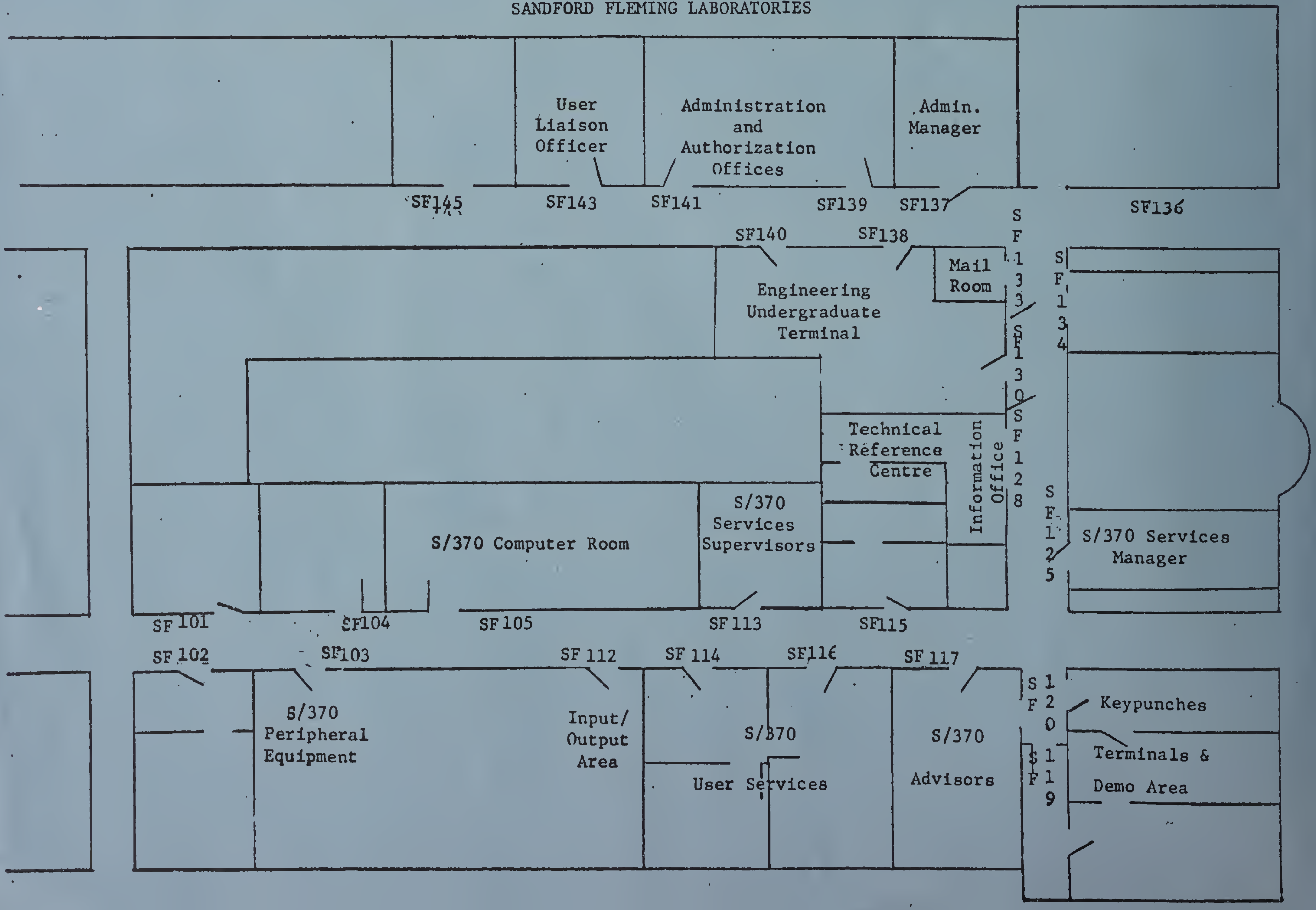




FLOOR PLAN: 12th Floor Burton Tower

FLOOR PLAN: UNIVERSITY OF TORONTO COMPUTER CENTRE

SANDFORD FLEMING LABORATORIES



A JOINT TORONTO-RYERSON-YORK COMPUTER CENTRE?

C. A. Ford

For some time now the Computer Centre staffs of York University, Ryerson Polytechnic Institute and the University of Toronto have been studying informally the feasibility of a joint Computer Centre serving the three institutions.

These informal studies have been spurred by a recent decision in favour of the joint centre concept, in principle, by the Presidential Advisory Committee on Computer Policy and Planning at its meeting of April 12th.

The PACCPP stresses that the acceptability of the joint centre will depend upon it providing services at least as good and at least as cheap as the present facilities do. Also, startup funds for the enterprise must be found from sources external to present University of Toronto budgets.

Technical studies continue. Comments are invited. Send or bring them to Dr. J. C. Wilson, Director, UTCC, to Professor H. L. Welsh, Chairman, PACCPP, or Professor M. J. Dignam, Chairman, UTCC Policy Committee.

HONEYWELL MULTICS PRESENTATION

C. A. Ford

On Wednesday, May 2, from 3:00 to 5:00 p.m., Mr. William Cochrane will present information about the MULTICS Computer System.

Mr. Cochrane is a Product Consultant at Honeywell Information Systems, Toronto, Ontario. MULTICS is the sophisticated time-sharing system developed at the Massachusetts Institute of Technology.

The presentation will take place in Room 102, McLennan Laboratories.

A PLATO TERMINAL NOW AVAILABLE AT UTCC

C. A. Ford

PLATO IV is a computer system developed by Dr. D. L. Bitzer at the University of Illinois. The basic intention for it is to provide a vehicle for computer aided (instruction/learning). A very special and unusual plasma-discharge visual display is used. And UTCC has one, located on the third floor of 49 St. George Street.

The terminal can be connected by telephone to the CDC 6400 computer in Illinois and you may try the system. If interested, please call 928-6496 to make arrangements.

COMPUTER SERVICE PRICES FOR 1973/1974

C. A. Ford

The prices charged by the Computer Centre for computer services to University users are under the regular annual review. The Pricing Sub-committee, F. R. Stone (Chairman), R. A. Collins and C. A. Ford, has met briefly and thus far has not seen reason to put forward any changes. However, no formal decision has been made and no report has yet been made to the Presidential Advisory Committee on Computer Policy and Planning.

Users need expect no major price changes to be made during 1973/1974, despite the present lack of a formal decision on the subject.

(Flash: this Sub-committee has been instructed to report in future to the UTCC Policy Committee, Professor M. J. Dignam, Chairman.)

EXPERIMENTAL DATA COLLECTION AND APL

R. Cavanagh

A previous article in this newsletter (Nov. 30, 1972) described how UTCC's hardware monitor, TORMON I, uses the APL*PLUS file system to collect, process, and display measurement data. This technique may also be useful in various types of experimental measurement systems where data is either collected at a low rate (less than 30 characters per second) or an intermediate storage buffer is used to store burst mode data with a delay before the next sample adequate for transmitting the buffer.

The prime advantage of APL as a data collection medium is the powerful file system which allows interactive processing of the data and continuous updating and display of results. Another advantage is that a normal telephone is used for communication to the computer, eliminating the cost and inflexibility of specially installed direct lines.

At the present time no standard hardware exists to interface user equipment to APL. A data acquisition terminal for use with APL is now being designed and we would like to discuss applications with possible users in order to generalize the design as much as possible. If you have interest in such a system please contact Malcolm Hindley-Smith 928-8992.

DAVE McNAUGHTON NAMED ASSOCIATE DIRECTOR

J. C. Wilson

Dr. D.J. McNaughton has been named Associate Director of the Centre. This is a new title and is in addition to Dave's old one of S/370 Services Manager. No organizational change has occurred.

The title is in recognition of Dave's outstanding contribution to the management of the Centre and of his expanded responsibilities in the last two years. He was originally hired as Operations Manager. Through two Computer Centre re-organizations he has since accepted the S/370 related responsibilities of two other management positions - User Services Manager and Development Manager - and he has handled these additional responsibilities in a most competent manner.

PERSONNEL CHANGES

P. Kellett

This month the Computer Centre welcomes a new staff member. Kameron Mark has joined S/370 Services as a Computer Hardware Technologist.

We have lost the services of two long-time staff members of the Computer Centre; Jennifer Schick has left us to go to Ryerson P. I. and Maggie Younger has decided to stay at home with her new baby.

We will also be saying good-bye to Paula LoBello of the Liaison Office at the end of April. We wish her good luck.

BMD STATISTICAL COMPUTER PROGRAM COURSE

L. Prepas

Consolidated Analysis Centers Incorporated is offering an introductory course (on three different occasions and of five days duration) on the principles of large scale statistical computing. The course will include a look at the many types of operational statistical programs available with particular attention to the valid application of statistical analysis.

Central to the course will be a discussion of the use of the UCLA BMD Statistical computer programs in statistical processing.

Course dates:	1.	May 7-11, 1973	New York City
	2.	June 25-29, 1973	Washington, D.C.
	3.	September 17-21, 1973	Washington, D.C.

Cost: $425/person

For further information please phone Len Prepas, at 928-8701.

SUMMER INFORMATION OFFICE HOURS

New Information Office hours will go into effect on May 1st, when the Information Office changes to its summer schedule. The hours of operation will be:

Monday through Thursday	9:00 A.M. to 9:00 P.M.
Friday	9:00 A.M. to 5:00 P.M.
Saturday	9:00 A.M. to 1:00 P.M.
Sunday	Closed

These hours will be in effect through Monday, September 3rd, at which time we will resume the winter schedule.

RECENT ACQUISITIONS IN THE DCS LIBRARY

ACM SIGFIDET Workshop, Denver, Nov. 1-72.
Data Description, Access and Control, ed. by A. L. Dean.
New York, ACM, 1972.

American Federation of Information Processing Societies.
World Markets for Electronic Data Processing Equipment.
Montvale, N.J., AFIPS, Jan. 1971.

Canadian Computer Census. 1972.

Computer Personnel Research Conference.
Proceedings of the 10th Conference, 1972.
New York, ACM SIGCPR, 1972.

Design Automation Workshop.
Proceedings. 8th (1971)

International Conference on Frontiers of Pattern Recognition,
University of Hawaii, 1971.
Frontiers of Pattern Recognition, ed. by S. Watanabe.
New York, Academic Press, 1972.

Knuth, Donald E.
The Art of Computer Programming, Vol. 3: Sorting and Searching.
Reading, Mass., Addison-Wesley, 1973.

Kreitzberg, Charles B. and Shneiderman, B.
The Elements of FORTRAN Style: Techniques for Effective Programming.
New York, Harcourt Brace Jovanovich, 1972.

Maynard, Jeff.
Modular Programming.
London, Butterworth, 1972.

Pavlovich, Joseph P. and Tahan, T. E.
Computer Programming in BASIC.
San Francisco, Holden-Day, 1971.

Schwarz,Hans Rudolf, with the participation of Rutishauser, H.
and Stiefel, E. Tr. from the German.
Englewood Cliffs, N.J., Prentic-Hall 1973.

SPITBOL Newsletter, No. 4 (March 1973)
Illinois Institute of Technology.

Symposium on the Complexity of Computer Computations, Yorktown Heights, N.Y. 1972
Complexity of Computer Computations, ed. by R. E. Miller and J. W. Thatcher.
New York, Plenum Press, 1972.

Varga, Richard S.
Functional Analysis and Approximation Theory in Numerical Analysis.
Philadelphia, SIAM, 1971.

World Conference on Computer Education, Amsterdam, 1970.
Papers of the First International Federation for Information Processing (IFIP) World Conference on Computer Education. ed. by B. Scheepmaker and K. L. Zinn.
Amsterdam, IFIP, 1970.

APL V CONFERENCE

S. Goldfarb

The fifth annual APL Users' Conference is to be held on May 15-18 at the Inn on the Park. The theme for the conference is: *APL APPLICATIONS IN EDUCATION AND BUSINESS*. Registration fee is $30.00. Registration hours are 6:00 pm to 10:00 pm on Tuesday, May 15 and 8:00 am to 10:00 am on Wednesday, May 16. An optional dinner banquet will be held at the Ontario Science Centre on Wednesday with guest speaker Dr. K. E. Iverson. Since seating at the dinner is limited, advance reservation and pre-payment are required. The dinner fee ($10.00 per person) includes entrance to Ontario Science Centre and bus service from the Inn on the Park. Cheque or money order should be made payable to "APL V Conference" and mailed to:

APL V Conference Registration
c/o Computer Services
York University
4700 Keele Street
Downsview, Ontario

The preliminary schedule for the conference follows:

Wednesday, May 16

9:00 *TEACHING APL*

"Teaching APL"
K. P. Carolan

"An Introductory APL Self Teaching Package"
D. Watson

10:00 - 10:30 Coffee break

"Motivating Arrays in Teaching APL"
G. H. Foster

"The Variety of Definitions of a Simple Function"
E. E. McDonnell

Panel Discussion to 12:00

12:00 - 13:30 Lunch

13:30 *APL FOR CAI*

"Techniques in Programming CAI with APL"
J. R. Clark, R. Mercer

"A Table Driven Program to Play a Game of Logical Deduction"
S. Charmonman, D. K. Reed

"Communication, Computers, and the Classroom"
L. N. Davis, J. Eskinazi, D. J. Macero

15:00 - 15:30 Coffee break

"A Simulator for Open Use of an APL Computer in Science Teaching"
G. Bartoli, L. Bartolo, V. Spadavecchia

"APL as an Aid to the Teaching of Undergraduate Economics"
J. R. Savary

Panel Discussion to 17:00

17:30 Buses Leave For Ontario Science Centre
Dinner Banquet

Thursday, May 17

8:30 *APL AS AN ANALYTIC NOTATION*

"APL as an Analytic Notation"
K. E. Iverson, Invited Speaker

"Formal Differentiation Using APL"
G. Wilhelmi

10:00 - 10:30 Coffee break

"Proposed Notation and Implementation for Derivatives in APL"
P. Penfield

"Facile Analysis of Weibull Probability Distributions Using APL"
E. C. Eimutis

Panel Discussion to 12:00

12:00 - 13:30 Lunch

13:30 *APL IN MANAGEMENT*

"Xerox Financial Planning and Control System in APL"
J. W. Rough

"The Brownbox Information Retrieval System"
D. Flower

"An Application of the Binomial Distribution to Sales Planning"
H. M. Courtney, C. M. Cheney

15:00 - 15:30 Coffee break

"Administrative Datafile Handling via APL"
W. R. Tinga

"APL for Information Management and CAI"
D. Vaskevitch

Panel Discussion to 17:00

19:30 Informal Discussion Groups

Friday, May 18

8:30 *APL POT-POURRI*

"APL/11 - A Poor Man's APL"
D. G. Moffat, M. A. Jenkins

"Simulating Computers in Symbolic Assembler Notation"
H. J. Saal

"Application of a Hybrid (Two-Mode) Processing System"
P. H. Russel, L. Wagshal, J. C. Wiginton

10:00 - 10:30 Coffee break

"An APL Translator for the B6700"
I. M. Braude, M. A. Jenkins

T. B. A.

Panel Discussion to 12:00

12:00 - 13:30 Lunch

13:30 Business Meeting

15:00 - 15:30 Coffee break

15:30 Open

17:00 →0

APL V CONFERENCE
May 15-18, 1973
Toronto, Canada

REGISTRATION

The following plan to attend:

Dinner Option (Wednesday)
($10.00 extra)

NAME ______________________________ yes ☐

NAME ______________________________ yes ☐

NAME ______________________________ yes ☐

Dinner reservation
limited to 200.
Pre-payment required.

ORGANIZATION ______________________

ADDRESS ___________________________
____
____

Enclose cheque or money
order payable to:
APL V Conference

JUST HOW BUSY IS THE S/370-165?

C. A. Ford

The spring peak of work has passed and, as usual, we are conducting the ritual study of, "How busy was it, really?". One indicator ought to be the graph of something called the Overall Service Factor. OSF shows how the users of the cheaper PR=4 service and the impatient ones at PR=8 balance off against the standard PR=6. Since the S/370-165 went into service the OSF has seldom exceeded the 100% mark over whole days, weeks or months. It does peak up during the afternoon rush period, occasionally reaching as high as 146%. But by and large OSF has said "not too busy". See Figs. I, II and III.

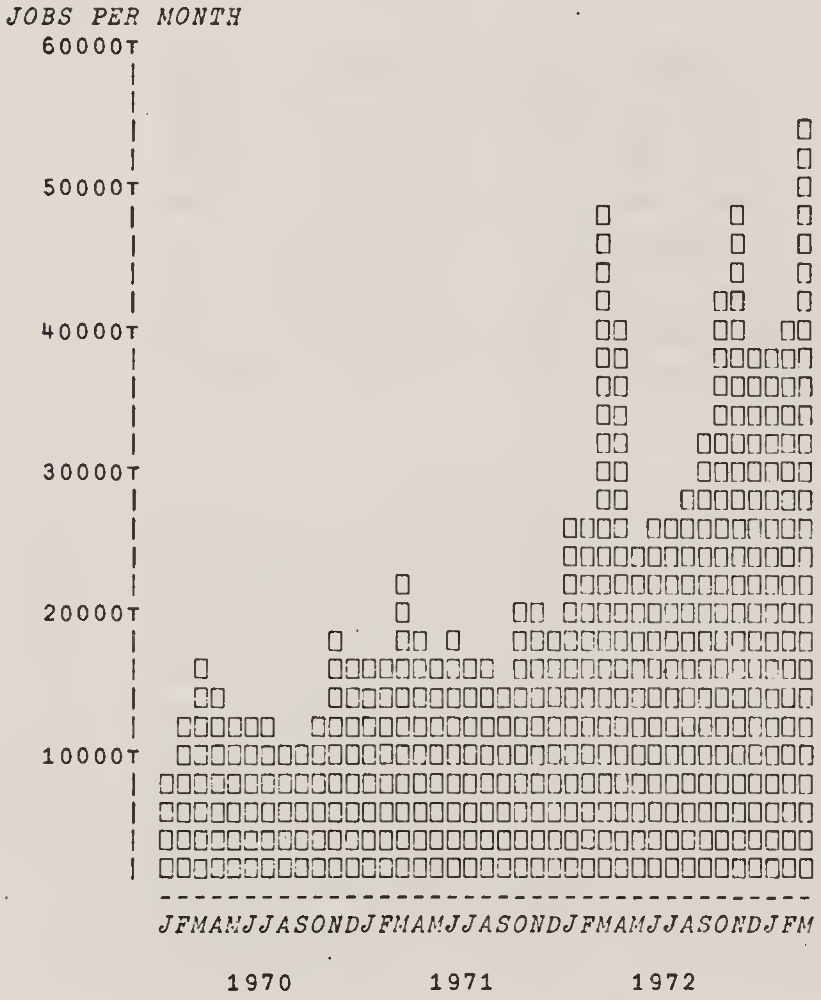
During daylight hours our TORMON hardware monitor has been recording total cpu cycle loadings approaching the 70% level, averaged over the eight prime hours. Over 60% of the 70%, i.e. 42% of the total cpu time, relates directly to the general purpose and high speed users jobs. The balance is consumed by indirect supporting services such as HASP and CRJE input/output. On rare occasions cpu utilization has been measured in the 70% to 90% range, spurred by a small number of number-crunching jobs.

But all of this varies through the daily cycle and with our well-known seasonal fluctuations (see the histogram GENERAL PURPOSE PRODUCTION). Thus we found in December of 1972 that from 9 a.m. to 9 p.m. on weekdays we averaged 19.4 minutes of cpu time for GPJS. The night and weekend time was far less heavily loaded, cutting the grand average to only 14.9 minutes per hour. By March, however, prime time loading had gone up to 23.0 minutes per hour and the overall level to 20.1 minutes. Total reported cpu time jumped over 60% from December to March. At the same time the job volume increased only 40%, showing the usual seasonal trend toward longer jobs.

Had the whole year been as busy as the month of March the S/370-165 would have processed 48% more jobs, delivering 44% more cpu time. Had March itself been solidly busy around the clock another 15% of work could have been handled. A study of all prospects for increasing S/370-165 service...longer hours, better loading at nights, more efficient cpu performance...indicates that 90% more work could be handled ultimately. But a well established rule of thumb says that a loading of over 70% leads increasingly rapidly to unsatisfactory turnaround. Thus March, 1974 could survive a 30% boost, the same as from 1972 to 1973, without undue stress. But watch out, 1975!

Meanwhile, expect busy daylight hours with good overnight reserve capacity. And, as next November approaches, don't expect such good turnaround from PR=4 as you will likely get during the summer.

GENERAL PURPOSE PRODUCTION



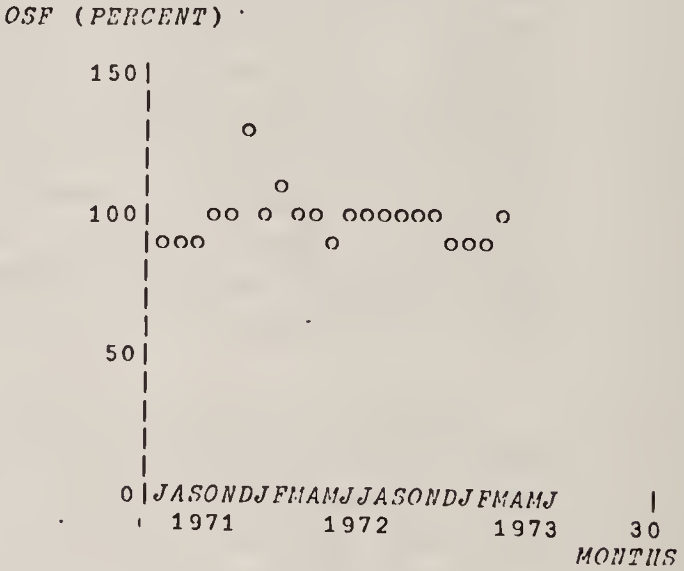


FIGURE I

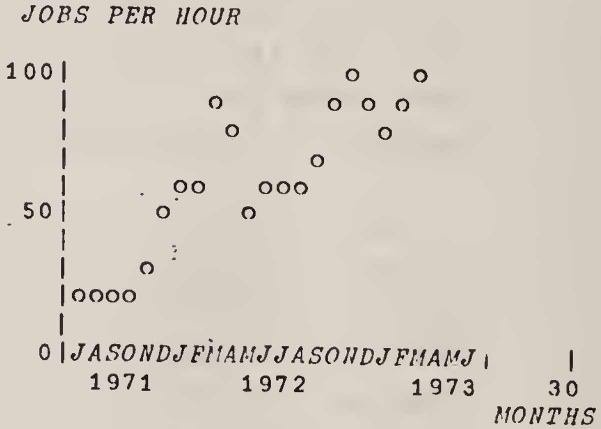


FIGURE II

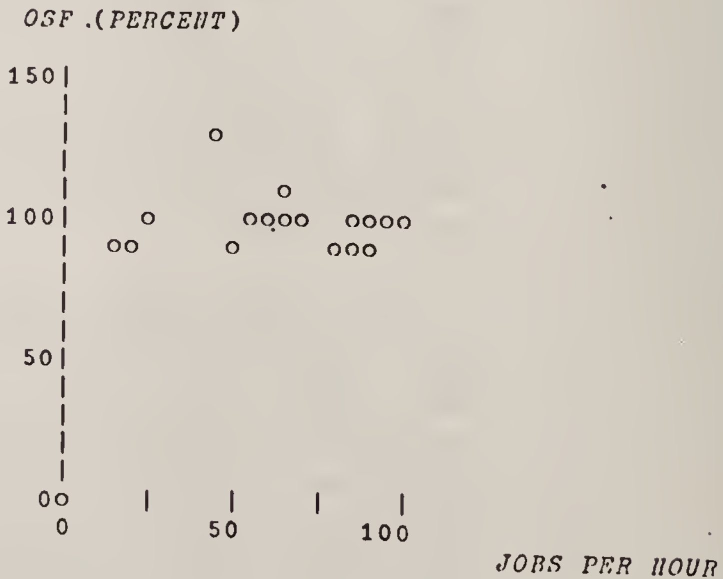


FIGURE III

GENERAL PURPOSE JOB STREAM ADVISERS' SURVEY

S. Verscay

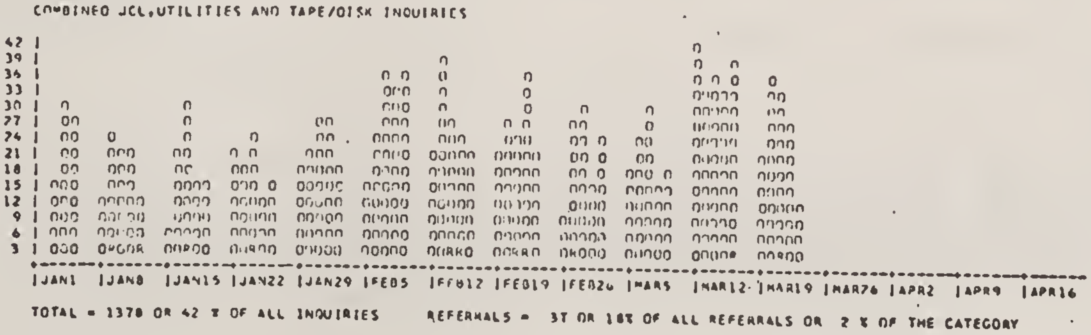
Users visiting the S/370 Advising Office in Room SF117 (formerly SF103), may have noticed the adviser made an entry into a survey form while answering the question. A curious user will find out that the number and the type of inquiries are recorded. The purpose of the survey is to study the overall usage of the Advising Office and to discover the most frequently sought information.

We are presenting some results of interest to the S/370 users. The survey is based on the "number of inquiries" answered by the adviser or referred within the S/370 User Services and elsewhere. Fifteen major areas of inquiries were recognized and observed. The following chart will illustrate some of the results obtained:

Category	Answered		Referred	
	Count	%	Count	%
JCL, Utilities & Tape/Disk	1378	42%	37	18%
Programming Languages	1160	35%	64	31%
Calcomp, CRJE, Statistical, Mathlib/Englib & Other	608	18%	84	41%
UTCC, but not S/370	81	2%	17	8%
All Inquiries	3227	100%	202	100%
All Referrals	185	5%	185	92%

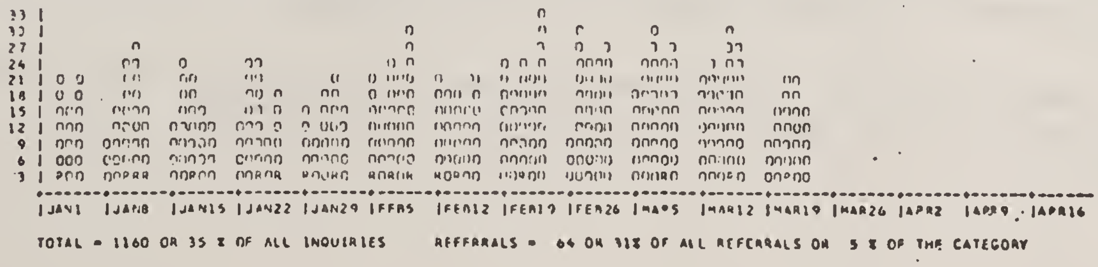
The same data become even more informative if viewed on the time scale.

1. JCL, Utilities & Tape/Disk



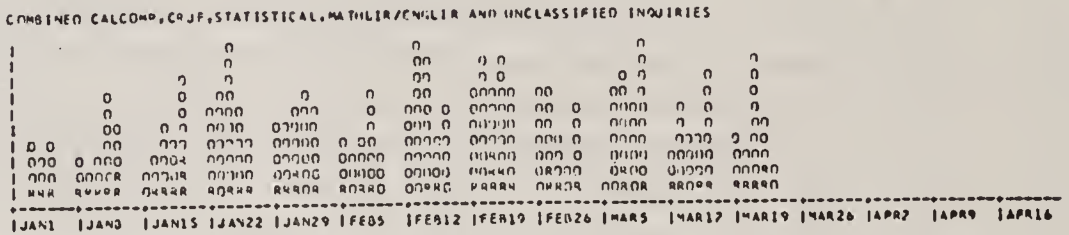
TOTAL = 1378 OR 42 % OF ALL INQUIRIES   REFERRALS = 37 OR 18% OF ALL REFERRALS OR 2 % OF THE CATEGORY

2. Programming Languages



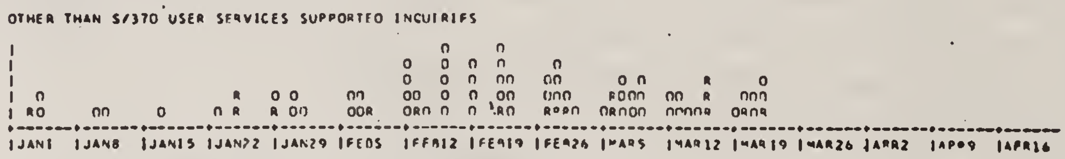
TOTAL = 1160 OR 35 % OF ALL INQUIRIES   REFERRALS = 64 OR 31% OF ALL REFERRALS OR 5 % OF THE CATEGORY

3. Calcomp, CRJE, Statistical, Math/Englib & Others



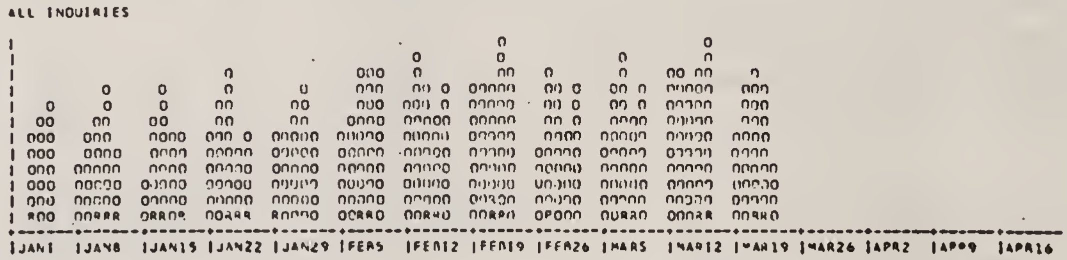
```
TOTAL =  608 OR 18 % OF ALL INQUIRIES     REFERRALS =  84 OR 41% OF ALL REFERRALS OR 13 % OF THE CATEGORY
```

4. Other than S/370 Inquiries



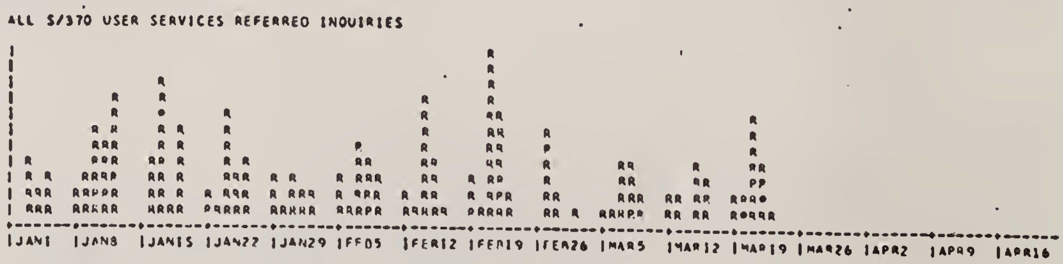
```
TOTAL =   81 OR  2 % OF ALL INQUIRIES     REFERRALS =  17 OR  8% OF ALL REFERRALS OR 21 % OF THE CATEGORY
```

5. All Inquiries



```
TOTAL = 3227 OR100 % OF ALL INQUIRIES     REFERRALS = 202 OR100% OF ALL REFERRALS OR  6 % OF THE CATEGORY
```

6. All Referrals



```
TOTAL =  195 OR  5 % OF ALL INQUIRIES     REFERRALS = 195 OR 96% OF ALL REFERRALS OR100 % OF THE CATEGORY
```

The peak load we were expecting to occur in March did not emerge, perhaps because of saturation.

The survey is still in progress now, and we will publish more data as it becomes available.

FORTRAN PROGRAM PRODUCTS ON THE S/370-165

J. Wettlaufer

Two new versions of the FORTRAN-G1 and FORTRAN-H-EXTENDED compilers have arrived and are now installed on the system. Both are version 2 level 0. In addition there is a new version of the library used by the FORTRAN-H-EXTENDED compiler.

The new FORTRAN-G1 release incorporates several problem fixes that were outstanding since the original release.

FORTRAN-H-EXTENDED, version 2 level 0, also incorporates many problem fixes in addition to new features. Corrected are outstanding bugs in: extended precision calculations, use of the AUTODBL feature; complex assignment statements and compiler performance problems (i.e. erroneous error messages; slow execution times or abends during the compilation step). The most noteworthy compiler performance change was a significant reduction in the I/O wait time posted in the compiler step. The compilation costs now are comparable to those for FORTRAN-H or even less in some cases. An article in the November 30, 1972 edition of the Newsletter pointed out the high I/O wait times observed for FORTRAN-H-EXTENDED when comparing the compilers on our system.

The new releaseof FORTRAN-H-EXTENDED has a new feature: optimization of I/O list processing. Whenever possible, a READ or WRITE statement having an implied DO in the I/O list will be treated as though the implied DO were array notation. This will result in a substantial reduction in the CPU time required to execute the following type of statement:

```
WRITE (4) (A(J),J=1,I)
```

As a comparison, if I=400, and we execute this statement 2000 times in a DO loop, then the actual CPU time used is .04 minutes under FORTRAN-H-EXTENDED release 2. If we use FORTRAN-G1, or FORTRAN-H the CPU time used is .34 minutes. In both cases the I/O wait time was .81 minutes.

This new feature will not result in better performance for programs using the array notation in I/O lists, ie:

```
WRITE(4) A
```

where A is a dimensioned array, since the compiler tries to reduce each I/O list to this type. However, in programs that use variables as limits in the implied DO loops, there will be a substantial performance improvement.

The new release of the library used by FORTRAN-H-EXTENDED incorporates numerous outstanding problem fixes.

As result of the these upgrades to FORTRAN-H-EXTENDED, users might seriously consider using it in place of the older FORTRAN-H, in order to take advantage of some of its advanced features.

We must also expect that IBM will eventually reduce the support level for FORTRAN-H, as they did in the past for FORTRAN-G.

Currently FORTRAN-H-EXTENDED can only be accessed via the IBM catalogued procedures for it. The other FORTRAN compilers can be accessed from the UTCC catalogued procedures using the "LEVEL=" parameter. Eventually FORTRAN-G1 and the new library for the FORTRAN-H-EXTENDED compiler will become the defaults in the UTCC catalogued procedures, in addition to being able to access FORTRAN-H-EXTENDED from the same procedures, while the old IBM procedures will remain unchanged. Sufficient advance notice will be given before these changes are made.

EXECUTOR

L. Lubin

A new software package has arrived on the scene and promises to be of great importance to a majority of our users. EXECUTOR, a system program integrated with HASP, was originally developed at the University of West Virginia to enable a large subset of OS jobs to bypass time-consuming OS initiation. Studies performed by our measurement group have indicated that turnaround time of many Class A jobs will be cut by up to 50% at no increased cost to the user. Throughput should change dramatically. Benchmarks have indicated an overall increase of up to 70% in this aspect with some of our test job streams.

Jobs that use new, permanent data sets, temporary or new ISAM data sets and data sets with a disposition of CATALOG or UNCATALOG will not be able to use EXECUTOR. These restrictions only affect a small percentage of the jobs that run on our system and most of our users should be able to benefit from EXECUTOR's implementation. Jobs submitted to EXECUTOR that contain any of the restrictions automatically bypass EXECUTOR and are run under the regular OS/HASP system. Watch for a new USERBOOK update that details the restrictions of this improved service.

FORMAT DUMP PROGRAM

H. Kugel

One of the most difficult problem areas involving abnormal job step termination is that which involves the diagnosis of Input/Output bugs. Errors such as those leading to a system completion code of 001 are very difficult to handle in that the user must often examine IBM operating system tables and pointers as well as his own code.

In the past, we have had the IBM VABDUMP software aide to format the printing of these tables--i.e. the Data Control Block, the Data Extent Block, the Input/Output Block and the Unit Control Block. But, since this aid did not work in our current release, we have obtained a program package from the Pilkerton Software Company for printing these tables in an easy to read format.

This package also displays I/O completion codes and Channel Status Word (CSW) information and abstracts pertinent DCB information, printing it in easy to read English language sentences.

This will be implemented shortly and should be of benefit in the debugging of I/O problems.

BRAILLE PRINTING

S. Yagi

S/370 Services have been investigating the feasibility of producing Braille Printing on the S/370-165. In co-operation with Mr. Brian Lingard, a partially blind student, a program to produce Braille Printing has been obtained through IBM and tested on the S/370-165.

Currently the major problem is adapting IBM 1403 printers to produce a quality Braille output.

Any users or users who know parties who may be interested in using such a facility on the S/370-165 are asked to contact Mr. Stan Yagi, Room 113, Sandford Fleming Building (928-7331) for further information.

The extent of future development with Braille Printing will depend to some extent on the interest generated among users.

SPECIAL PRINTER SETUP

L. Hanna

A new system for special printer setup has recently been designed to allow users more flexibility in requesting printer mounts. The columns of the 4 digit special forms number will represent a parameter of a printer available for setup. The number (0-9) in the specific column will indicate the nature of the change desired within that parameter.

The parameters available are:

Column 1 - Trains
Column 2 - Carriage tapes
Columns 3 & 4 - Forms

The table below indicates the options presently available for mounting.

TRAIN		CARRIAGE TAPE		FORMS (size in inches)		
0xxx	PN	x0xx	6LPI STD	xx00	STANDARD	11 x 15
1xxx	RESERVED	x1xx	6LPI LABEL	xx01	BLANK	11 x 15
2xxx	TN	x2xx	8LPI STD	xx02	2-PART	11 x 15
3xxx	RESERVED	x3xx	8LPI LABEL	xx03	3-PART	11 x 15
4xxx	RESERVED	x4xx	FUTURE	xx04	4-PART	11 x 15
5xxx	RESERVED	x5xx	FUTURE	xx05	LABELS	4 x 1 7/16
6xxx	RESERVED	x6xx	FUTURE	xx06	REVERSE 2-PART	11 x 15
7xxx	FUTURE	x7xx	FUTURE	xx07	FUTURE	
8xxx	FUTURE	x8xx	FUTURE	xx08	FUTURE	
		x9xx	FUTURE	xx99	FUTURE	
9xxx	USER SUPPLIED FORMS 9000-9999					

Examples:

1) PN Train - 8 lines/inch - 3 part paper: 0203
2) TN Train
3) TN Train - 6 lines/inch - blank paper: 2001

All user supplied forms will fall in the range 9000-9999. The allocation of these numbers may be arranged through the I/O Shift Supervisor.

Those users who are already supplying their own forms are requested to call Laurie Soul at 928-2914 at their first convenience, since some renumbering of forms is necessary. Please give Miss Soul your name, address, phone number and the number(s) of the user-supplied form(s) you are presently using. We will let you know shortly thereafter what your new number will be. Meanwhile continue to use your present number.

Please watch for USERBOOK updates announcing the implementation date of this new procedure.

MAINTENANCE RELEASE OF THE OPERATING SYSTEM

D. Brady

The System Support Group usually takes advantage of the lighter system load in the summer months to test and install new levels and versions of the various components of our system software. Among other planned implementations for the coming period is a maintenance level of the release 21 Operating system.

OS Release 21.0 was installed last summer to support new hardware. A "maintenance level" of release 21, incorporating fixes to hundreds of problems encountered at other installations, is now undergoing tests here. Besides providing a more reliable system, the new release will allow us to again alter the hardware configuration and to generate some new software components for test purposes. Of course, the thorough testing that precedes any new software installation will be performed with the aim of establishing the reliability and performance of the system before it goes into regular production.

UPDATES ISSUED FOR USERBOOK SECTION 3

J. Campbell

Pages added, and/or replaced by updates:

March 1/73:	3.4335	3.4335-6*	3.4335-11*
	3.4335-2*	3.4335-7*	3.4335-12*
	3.4335-3*	3.4335-8*	3.4335-13*
	3.4335-4*	3.4335-9*	3.4335-14*
	3.4335-5*	3.4335-10*	3.4335-15*
			3.4335-16*
March 12/73:	3.5	3.5192*	3.9903-13*
	3.5167	3.5192-2*	
	3.5170	3.5290-2*	
	3.5190	3.5220*	
	3.5190-2*		
March 19/73:	3.6	3.4105-2*	3.9903-14*
	3.6006	3.4105-3*	
April 6/73:	3.2-4*	Temporary Update Remove April 23/73	
April 11/73:	3.6007	3.5	3.9903-15*
	3.6010	3.5298	
		3.5299-2*	
		3.5299-3*	

Summary of Changes:

Detailed documentation of the University of Toronto dataset utility UTDSUTIL is provided in 3.4335.

Corrections have been made to the ASSEMBLER Language documentation. The COBOL Language is described in 3.5190 and 3.5192.

The LIST facility on the HSJS has been replaced by the REPRODUCE facility. (3.6006)

Special formatting problems relating to ONLINE datasets are described in 3.4105.

AUTOBATCHING has been implemented on S/370-165. AUTOBATCH will not require special action to be taken by HSJS users. However, GPJS users may be affected. Refer to 3.5299.

ASCII SUPPORT ON APL

S. Goldfarb

APL can be accessed from terminals featuring the ASCII character encodings (e.g. TTY/33 and most display terminals) at speeds of 110 or 300 baud. Four ports are available for use with ASCII terminals; the ports may be accessed by dialing 928-7243. The Memorex 1270 Control Unit determines the baud rate being used by examining the _first_ character transmitted. For 110 baud transmission, therefore, the user must depress the Control-S (X-OFF) key prior to sign-on. For 300 baud transmission, the user must depress the shift-O (uppercase letter O) key prior to sign-on. Because teletype compatible terminals do not provide a sufficiently large character set for use with APL (nor do they provide for overstruck characters), the use of teletype terminals is primarily restricted to function execution and alphanumeric input/output (keyboard or paper tape). Some of the APL operators have been assigned positions on the teletype keyboard and can be used in "calculator mode" operations; several other operators are available as functions in Workspace 1 TY33FNS. Support for full ASCII (upper and lower case) terminals has been modelled on the character sets provided by the Tektronix 4013 and Memorex 1240 terminals. More complete details on the ASCII support can be obtained from Workspace 1 HOTNEWS, variable TY33HOW.

ASCII SUPPORT ON ATS

S. Goldfarb

The code-convert hardware feature of the Memorex 1270 Control Unit provides for the conversion of ASCII code to IBM (2741) Correspondence code. The code-convert is involved for (ASCII) terminals transmitting at 150 baud. Users, therefore, may use ATS (phone 928-7100) with ASCII terminals having an upper and lower case character set and transmitting at 150 baud (15 characters per second). The Memorex Control Unit determines the baud rate being used by examining the _first_ character transmitted. For 150 baud terminals, the user must depress the shift-Y (uppercase Y) key prior to sign-on.

INTERACTIVE SYSTEMS RELIABILITY

S. Goldfarb

The uptimes achieved in March for each of APL, ATS, and CPS were 99.82%, 99.73% and 99.76%, respectively. The total number of scheduled hours of operation during the period March 1 through March 31 was 501. In addition to the scheduled hours of operation, APL, ATS and CPS were available during approximately 127 hours of unscheduled weekend time.

The following table summarizes the time lost out of scheduled hours of production. There were two late starts due to hardware problems; the total times lost were 27, 32 and 35 minutes for APL, ATS and CPS, respectively. The table shows the time lost due to system failures for each of the systems: two unscheduled IPL's were required as a result of the failures.

DATE	DOWNTIME (mins)			REASON
	APL	ATS	CPS	
Thu. Mar. 1	-	-	1	CPS Abend (Software)
Wed. Mar. 7	-	4	-	ATS Abend OF1 (Software)
Thu. Mar. 15	9	11	12	*Solid System Loop (Software)
Tue. Mar. 20	-	-	1	CPS Abend (Software)
Tue. Mar. 27	18	20	22	*Channel Error (Hardware)
Wed. Mar. 28	-	7	-	ATS High Speed IO Problems (Software)
Thu. Mar. 29	-	6	-	ATS Abend (Software)
Totals	27	48	36	*IPL Required

System Failures March 1 to March 31, 1973

GENERAL NEWS

K. C. Patnaik

CRF Users' Meeting

The March CRF Users' meeting was held in Room 222 Sandford Fleming Laboratories at 3:00 p.m. on Friday, March 23rd, 1973.

Discussion at the meeting centred around the S/360-44 core installation and its software impacts.

The next CRF Users' meeting will be held in Room 222 Sandford Fleming Laboratories at 3:00 p.m. on Friday, April 27th, 1973. All CRF users are invited to attend.

Victoria Day Holiday

The CRF laboratory and offices will be closed on Monday, May 21st, 1973 for the Victoria Day holiday.

The CRF laboratory will close at 8:00 p.m. on Friday, May 18th, 1973 and will reopen at 9:00 a.m. on Tuesday, May 22nd, 1973.

Promotion

On March 14th, 1973, Mr. Dennis R. Smith was promoted to the position of Assistant Manager of the Computer Research Facility. Mr. Smith will also continue as the Head of Software Services.

CRF Participation at SHARE XL

J.R. McBride and D.R. Smith attended the Share XL Conference held at Denver, Colorado, March 5 to March 9, 1973. D.R. Smith attended the HASP and new virtual storage operating system sessions. J.R. McBride's participation was as the Chairman of four sessions on Computer Graphics and as Project Manager for Graphics Documentation Project.

Visits

During the month of March 1973, J.R. McBride visited the S/360-44 installations at the University of Glasgow and the University of St. Andrews in Britain.

EXPANSION OF S/360-44 CORE MEMORY

The expansion of the S/360-44 core memory is under test now. Bench marks and extensive testing is being done to evaluate the reliability of the new core under O/S. The final installation is now expected for late April and will be officially available some time in May or June 1973.

Grade 'A' operators are reminded that during the installation and testing period, blocks of time between 8:00 p.m. and 8:00 a.m. will be reserved for the customer engineers; the S/360-44 log should be checked before coming in at night or on week-ends.

HOURS OF OPERATION

As of March 14, 1973 the CRF laboratory closes at 8:00 p.m. The new operating hours are as follows:

Monday to Friday	9:00 a.m. to 8:00 p.m.
Saturday, Sunday and Holidays	closed.

The laboratory will be reserved for Grade 'A' operators on week-ends and after 8:00 p.m. on week days.

VISITORS TO THE CRF LABORATORY

The following people visited the CRF laboratory between March 10 and April 10, 1973.

Mr. David McLeod (Hart House Chess Club, Toronto), Miss Suzanne Sartin and Miss Dianne Fortner (Willowdale), Mr. Peter Hodes and Mr. Dvane Zilm (Toronto), Mrs. Mary Egan and 10 Students from Ontario College of Art (Toronto), Mr. J. Willis (Downsview), Mr. P. Gibbons (Toronto), Mr. Chuck Weger (New York City), Professor David Dyer-Bennet (Carleton College, Minnesota), Professor Kenneth O. May (Department of Mathematics, University of Toronto), Mr. Kirk Farquhar and 10 students from Ecole Polytechnique, (Montreal), Mr. Tom Galley (Hospitals' Computing Centre, Toronto), Mr. Kurt Weissert and Mr. W. Kelley (Ontario Hydro), Dr. R.R. Tasker, Dr. M. Shanein and Dr. V. Sogabe (Department of Physiology, University of Toronto), Dr. Charles A. Harlow University of Toronto), Dr. L.W. Organ (Department of Physiology, University of Toronto), Dr. Charles A. Harlow (Department of Electrical Engineering, University of Missouri).

CRF STAFF DIRECTORY

The following staff directory contains the new room numbers for the CRF offices on the second floor, Sandford Fleming Laboratories.

Section/Names	Telephone Number	New Room Number
Enquiries		
F.E.M. Halls	8946	SF214
Manager		
J.R. McBride	4086	SF214
Secretary		
T.A. Holland	4086	SF214
Account Services		
B.J. King	6326	SF214
Data Acquisition Services		
T.C. Stevens	8853	SF207
A. Bakumenko	6350	SF203
G. Thorn	6350	SF203
Operations		
K.C. Patnaik	8853	SF207
B. Leger	8858	SF207
Research Applications		
M. Hindley-Smith	8992	SF214
Software Services		
D.R. Smith	7133	SF214
K.D. Weir	5271	SF214

UTCC DIRECTORY

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	49 St.Geo	6496
ASSISTANT DIRECTOR		
C. Alan Ford	49 St.Geo	2991
USER LIAISON OFFICER		
Bill Greene	SF143	2694
Information Office	SF128	4990 or 4991
ADMINISTRATION MANAGER		
Jerry Palter	SF137	8948
AUTHORIZATION CLERKS		
Nancy Pocock (S/370 + 7094)	SF139	8702
Yvonne Davis (Interactive)	49 St.Geo	8703
S/370 SERVICES		
MANAGER		
Dave McNaughton	SF125	6281
INPUT/OUTPUT SUPERVISOR		
Derry Cox	SF113	7092
USER SERVICES SUPERVISOR		
Stan Yagi	SF113	7331
SYSTEMS SUPPORT SUPERVISOR		
Rein Mikkor	SF113	5058
PROGRAM ADVISORS	SF117	8599
INTERACTIVE TERMINAL SYSTEMS		
MANAGER		
Sam Goldfarb	49 St.Geo	3787
7094 SERVICES		
MANAGER		
Joyce Walton	BT1207	7094

JOB STATUS QUERIES:

SYSTEM/370	7373
7094	7094

INTERACTIVE TERMINAL SYSTEMS:

System Status	6234
APL	7200
ATS	7100
CPS	6200

CONVERSATIONAL REMOTE JOB ENTRY (CRJE)

2741: Tel: 7223 7381 7386

TTY: 7445

UTCC COMPUTER EQUIPMENT

(a) SYSTEM/370 MODEL 165

- located in SF 112
- provides General Purpose Job Stream, High Speed Job Stream and Conversational Remote Job Entry services
- 2048K bytes of core
- 1 drum
- 4 disk drives IBM (3330)
- 8 disk drives IBM (2314)
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 7 remote batch terminals
- 1 paper tape reader
- CALCOMP plotter (11" and 30")

- OS/MVT with HASP

(b) SYSTEM/360 MODEL 65

- located in Room 333 McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 16 disk drives (2314)
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 120 typewriter terminals

- OS/MVT with APL, ATS, and CPS

(c) 7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

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